Dehydration

Dehydration is the term that is used when the body loses too much water. The body requires a certain amount of water to work normally. Our bodies are made up of about two thirds water. Water forms the basis for all body fluids, including blood and digestive juices. It helps to transport and absorb nutrients.

Body water is lost daily through our lungs as water vapor, through skin as sweat, and through tears, urine, and stool. During an average day, about 10 cups of water is lost. During heavy exercise in hot weather, the body can lose that much in an hour.

Water losses are normally replaced with drinking fluids and eating food that contains water. When someone becomes sick or is exposed to excessive heat, the body cannot keep up with the losses and dehydration occurs. Severe dehydration is a medical emergency and can be life-threatening. Death from dehydration can occur in three days or less. No one normally lives for more than 5 to 6 days without water.

Causes of excessive body water losses:

A. Illness
   - Vomiting and diarrhea
   - Increase in urination (infection, diabetes)
   - Fever
   - Lung problems
   - Kidney problems
   - Burns (lose water through damaged skin)

B. Activities and environment
   - Excessive sweating and exercise, especially in hot weather
   - Rapid breathing during exercise
   - Hot, dry windy days can cause more water loss than cool days
   - Inadequate water intake
   - Alcohol consumption which can cause excessive urination and perspiration
   - Diets: some diets include the use of laxatives and diuretics which emphasize shedding “water weight” as a quick weight loss method

C. Medications
   - Diuretics which are used to treat high blood pressure
   - Antihistamines
   - Anti-inflammatory medications such as ibuprofen
   - Some psychiatric medications have side effects that cause water loss through diarrhea, vomiting, loss of appetite, etc. (Lithium, Depakote, antipsychotics)

Risks for dehydration:

A. Older age
   - As the body ages it has less ability to conserve water
   - The sense of thirst is less acute
   - The body responds less to changes in temperature

B. Chronic illness
   - Poorly controlled diabetes mellitus
   - Kidney disease
   - Alcoholism

C. Athletes, especially endurance athletes
   - The longer someone exercises, the harder it is to stay hydrated. For those that exercise daily, the water losses accumulate and can lead to dehydration

D. High altitudes (especially over 8,000 feet)
   - At high altitudes, the body attempts to adjust by rapid breathing and increased urination which can lead to dehydration

Symptoms of dehydration:

Mild	Moderate	Severe
Thirst*	Very dry, sticky mouth	Extreme thirst
Dry lips	Thirst	Irritability
Slightly dry mouth	Sleepiness or tiredness	Confusion
	Less frequent urination	Little or no urination
	Lack of tears with crying	Dark, concentrated urine
	Headache	Lack of sweating
	Muscle weakness and cramps	Low blood pressure
	Dizziness or lightheadedness	Rapid heart rate and breathing
	Sunken eyes	Cold hands, blue lips
*some individuals are not able to feel or report thirst	Skin that lacks elasticity (doesn't bounce back when pinched into a fold)	Fever

In very serious cases, delirium, unconsciousness, or coma can occur.

Complications:

A. Heat injury
   - Heat cramps occur commonly in people who work hard in the heat. The muscles being used during work are usually the ones that cramp.
   - Heat exhaustion is seen when the body temperature is above 102 degrees Fahrenheit. Symptoms include headache nausea, dizziness, weakness, and thirst.
   - Heat stroke is a medical emergency and can cause confusion, headache, irritability, and lead to loss of consciousness, seizures and coma. The body temperature is generally over 104 degrees Fahrenheit.

B. Brain swelling (cerebral edema)
   - This can occur if electrolytes such as sodium are unbalanced and the cells respond by pulling more water inside them. This causes swelling of the cells.

C. Seizures
   - With dehydration, the normal electrical activity of the brain can become disorganized and cause or increase seizures.

D. Shock
   - With dehydration the blood pressure can drop and the resultant reduced blood flow means that less oxygen reaches tissues.

E. Kidney failure
   - The kidneys no longer work well when there is not enough fluid circulating through the body.

Diagnosis:

A. Diagnosis is usually based on physical signs and symptoms.

B. Blood tests
   - Electrolytes such as sodium
   - Kidney function tests

C. The urine can show dehydration by its color as well as a measure of concentration called the specific gravity.

Treatment:

A. Drinking more fluids especially water or drinks containing electrolytes.

B. Fluids should be taken in frequent, small amounts as drinking too much, too fast can cause vomiting.

C. Fluids containing caffeine can stimulate further water loss by increased urination.

D. Fluids that contain a lot of sugar can cause or worsen diarrhea.

E. Intravenous (given through the veins) fluids may be needed for severe dehydration.

Prevention:

A. Consume plenty of fluids and foods that contain a lot of water (fruits and vegetables) on a regular basis.

B. Drink extra fluids during hot weather

C. Drink extra fluids when ill.

D. When strenuous exercise is planned, start hydrating the day prior and replenish fluids at regular intervals during and after exercise.

E. Schedule physical outdoor activities during the cooler parts of the day.